a second optical region made of a second optical material which is substantially transparent to said light but is different from said first optical material and has a refractive index n_2;

a third optical region made of a third optical material which is transparent to said light but is different from said second optical material and has a refractive index n_3, said first, second and third optical regions being arranged to be brought into contact with each other or being arranged close to each other;

a first relief pattern formed in a boundary surface between said first and second optical regions and having a first pitch distribution and a depth d_1; and

a second relief pattern formed in a boundary surface between said second and third optical regions and having a second pitch distribution which is substantially identical with said first pitch distribution of the first relief pattern and a second depth d_2, said first and second relief patterns being substantially aligned in a direction of an optical axis of the diffractive optical element, wherein said first relief pattern has a wavelength depending phase amplitude $a_1(\lambda)$, said second relief pattern has a wavelength depending phase amplitude $a_2(\lambda)$, said diffractive element has a phase amplitude $a(\lambda)$ which is a sum of said phase amplitudes $a_1(\lambda)$ and $a_2(\lambda)$ and includes at least one peak value within the wavelength to be used.

40. (Amended) A diffractive optical element comprising:

a first optical region made of a first optical material which is substantially transparent to light within a wavelength range to be used and has a refractive index n_1;

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a second optical region made of a second optical material which is substantially transparent to said light but is different from said first optical material and has a refractive index n_2;

a third optical region made of a third optical material which is transparent to said light but is different from said second optical material and has a refractive index n_3, said first, second and third optical regions being arranged to be brought into contact with each other or being arranged close to each other;

a first relief pattern formed in a boundary surface between said first and second optical regions and having a first pitch distribution and a depth d_1; and

a second relief pattern formed in a boundary surface between said second and third optical regions and having a second pitch distribution which is substantially identical with said first pitch distribution of the first relief pattern and a second depth d_2, said first and second relief patterns being substantially aligned in a direction of an optical axis of the diffractive optical element, wherein said first relief pattern has a wavelength depending phase amplitude $a_1(\lambda)$, said second relief pattern has a

wavelength depending phase amplitude $a_2(\lambda)$, said diffractive element has a phase amplitude $a(\lambda)$ which is a sum of said phase amplitudes $a_1(\lambda)$ and $a_2(\lambda)$ and includes at least one peak value within the wavelength to be used, wherein when an average refractive index of a composite relief structure constituted by the first and second relief patterns is n_0, a thickness of the diffractive optical element is D, and a smallest pitch of the relief patterns is T, the following condition is satisfied:

$$\frac{2\pi\lambda D}{n_0 T^2} < 1.$$

42. A diffractive optical element comprising:

a first optical region made of a first optical material which is substantially transparent to light within a wavelength range to be used and has a refractive index n_1;

a second optical region made of a second optical material which is substantially transparent to said light but is different from said first optical material and has a refractive index n_2;

a third optical region made of a third optical material which is transparent to said light but is different from said second optical material and has a refractive index n_3, said first, second and third optical regions being arranged to be brought into contact with each other or being arranged close to each other;

a first relief pattern formed in a boundary surface between said first and second optical regions and having a first pitch distribution and a depth d_1; and

a second relief pattern formed in a boundary surface between said second and third optical regions and having a second pitch distribution which is substantially identical with said first pitch distribution of the first relief pattern and a second depth d_2, said first and second relief patterns being substantially aligned in a direction of an optical axis of the diffractive optical element, wherein said first relief pattern has a wavelength depending phase amplitude $a_1(\lambda)$, said second relief pattern has a wavelength depending phase amplitude $a_2(\lambda)$, said diffractive element has a phase amplitude $a(\lambda)$ which is a sum of said phase amplitudes $a_1(\lambda)$ and $a_2(\lambda)$ and includes at least one peak value within the wavelength to be used, wherein when a shortest wavelength of the wavelength range to be used is λ_1, a longest wavelength of the wavelength range to be used is λ_2, and a middle wavelength between λ_1 and λ_2 is λ_0 $(=(\lambda_1 + \lambda_2)/2)$, the following condition is satisfied:

$$\lambda_2 - \lambda_1 > 0.05\lambda_0.$$

Please add new claim 48 as follow:

--48. A diffractive optical element according to claim 36,

wherein one of the first, second and third optical regions is formed by one of air or material equivalent to air and having a refractive index of substantially 1.--